

CONFIDENTIAL

FILE  
PAR 226

ANALYSIS OF PHOTOGRAPHIC IMAGE  
TO  
EVALUATE SYSTEM PERFORMANCE

10 April 1964

Declass Review by NGA.

PROJECT AUTHORIZATION REQUEST

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SUBJECT: Analysis of Photographic Images to Evaluate System Performance

TASK/PROBLEM

1. To provide a more useful technique for evaluating photographic systems by using data obtained from microdensitometer scanned edges.

PROPOSAL

2. Measurements obtained by this technique have correlated well with the traditional subjective evaluations. A major advantage of this method over other objective techniques is the ability to measure typical photographic missions without restriction to photographs of scenes containing special, laboratory-type (e.g., 3-bar) test objects.

3. It is proposed that this effort be undertaken in two(2) phases as follows:

a. Phase I: That the data base be expanded by scanning and reporting the data from additional operational missions.

b. Phase II: Development be undertaken to improve and extend the technique of photographic mission analysis by means of microdensitometer traced edges.

PROGRAM OBJECTIVE

4. Phase I:

a. Data Acquisition: Edge traces from each operational mission will be measured and analyzed to obtain data which will be reduced and reported for comparison with other evaluating data. If available, approximately 100 edges will be measured per mission.

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b. Data Report: The data for each mission will be reported as spread function width at half amplitude and computed resolving power. The report will contain:

(1) A summary sheet listing the average value, the standard deviation, and the coefficient of dispersion,

(2) Frequency plots (histograms) of the spread function and resolving power data for the mission, and

(3) A listing of the description, location and image quality rating of each edge scanned. Listing will include camera identification pass number, frame number, location within the frame, type of ground object spread function width, and computed resolving power.

5. Phase II: The investigation will cover the following topics:

a. Study of the repeatability of microdensitometer traced edges and a determination of inherent measurement errors.

b. Investigation and study directed toward making recommendations to improve methods of collecting and reducing data.

c. Extension of the data on correlation of edge measurements with other, subjective evaluation techniques.

d. Testing of the edge measurement technique on color materials.

#### SCHEDULE

6. Tentative schedule shown in Fig. 1 covers the Phase II effort only. Since mission rate and intensity may have an effect on work-load and could delay mission reports prepared under Phase I, Phase I progress will be reported in each informal (monthly) and quarterly report.

TENTATIVE SCHEDULE

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STAT

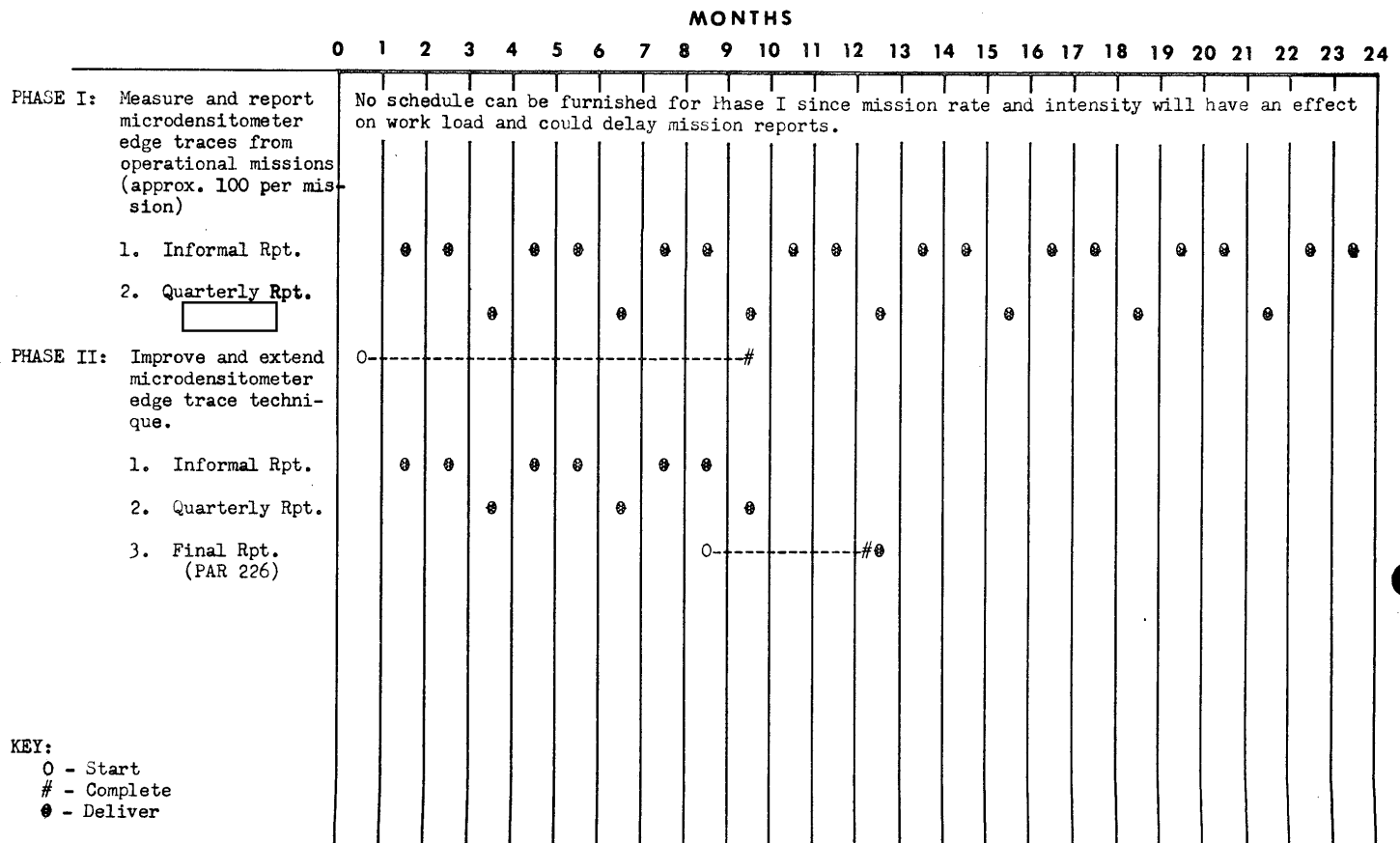


Fig. 1